

NOTES ON THE LAYSAN FINCH.

BY HUBERT LYMAN CLARK.

° SOME time ago, Dr. W. K. Fisher kindly gave me an alcoholic specimen of the Laysan Finch, *Telespiza cantans* Wils., with the suggestion that I examine its pterylosis, comparing it with that of some of its Hawaiian allies as described by Gadow (in Wilson and Evans' *Aves Hawaiienses*, pp. 219-249). Since *Telespiza*, however, is one of the very few genera of endemic Hawaiian birds which Gadow had no opportunity to examine, it seemed desirable to examine some of the other features of its anatomy and thus make my notes a sort of addendum to Gadow's work. The relationship of *Telespiza* to *Loxioides*, *Psittirostra* and *Rhodacanthis* is so evident that it would be surprising if my investigation threw any new light on the connection between these birds and the other Passeres. I have however compared my Laysan finch in each character examined with a Chewink, *Pipilo erythrophthalmus*, not because of any possible relationship between the two, but because the chewink is a ground-loving finch not altogether unlike *Telespiza* in its habits. I will take up the different points examined in the order adopted by Gadow in his account of *Loxioides*.

Bill. Gadow says that the bill of *Loxioides* is "like that of typical *Coenocorystes* and clearly Fringilline, without notches." In *Telespiza*, the bill seems to be very similar to that of *Loxioides*, but I am not sure that it is clearly Fringilline. It is not very similar to that of *Pipilo* nor to those of several other American finches with which I have compared it. Its most marked peculiarities, in addition to the absence of notches, are the very straight commissural line with hardly a trace of being bent downwards at the inner end and the markedly incurved or inrolled tomia, which do not appear to form any cutting edge against the upper mandible.

Nostrils. The character of the nostrils is one of the most marked differences between *Telespiza* and *Pipilo* or any other Fringilline birds with which I have compared it. The openings are large but each is provided above and on the posterior margin with a piece of thick bare skin, apparently corresponding to the opercular fold of many Hawaiian birds. A similar fold, less conspicuous because

narrower and sloping inwards, is present on the lower margin also. So far as I can understand from Gadow's description (l. c., p. 246) this arrangement is very much like that found in *Rhodacanthis* and *Chloridops*. It is less like that found in *Psittirostra* and seems to be noticeably different from what is shown by *Loxioides*. It seems probable that Rothschild's description of the nostrils in *Telespiza* (Avifauna of Laysan, p. 199) was made from a dried specimen, for it does not accord with what alcoholic material shows. It may be that in life the nostrils can be quite closed by the movement of the bare surrounding skin.

Tongue. In *Telespiza*, although the tongue resembles that of *Loxioides*, the vertical thickness and fleshiness are remarkable. The tongue proper is 11 mm. long, scarcely 2 mm. wide and about 2.5 mm. in vertical thickness. The fleshy surface is quite papillose and the tip is not divided but is finely fringed as in *Loxioides*. As compared with *Pipilo*, *Telespiza* has a much larger, thicker, fleshier and blunter tongue.

Pterylosis.—The resemblance between *Telespiza* and *Pipilo* in the general pterylosis is so striking as to be remarkable. The head is very fully feathered and has no apteria; above the eye there is more or less evidence of longitudinal rows in the arrangement of the feathers. The upper cervical tract is narrow and well defined and is continuous with the dorsal tract, which is characterized by a rhombic saddle of good size. The femoral tracts are narrow, about 10 mm. long and perfectly defined. The lower cervical tract forks well up on the throat and each branch connects very evidently over the shoulder with the narrow humeral tract. The sternal tracts are moderately wide and are slightly but distinctly separated posteriorly from the ventrals, which are moderately broad and end some distance anterior to the anus. In *Telespiza*, a narrow but quite distinct branch of the sternal tract runs directly upward on the side of the body under the wing for 6-8 mm., at right angles to the main tract; it contains 10-12 feathers. Indications of this tract are present in *Pipilo* but Gadow does not refer to its occurrence in any of the Hawaiian birds examined by him. Possibly its definiteness in *Telespiza* is associated with the ground-loving habits of the bird. While there are only nine primaries in *Pipilo*, there are ten in *Telespiza*, the tenth being short and apparently non-functional; the longer primaries had all been cut in my

specimen, so that I can say nothing as to their relative length. There are nine secondaries in one wing but there seem to be ten in the other; the wing is quintocubital. There are twelve rectrices. While the resemblance to *Pipilo* is marked, except in the number of the primaries, it should be noted that the differences in pterylosis between *Telespiza* and *Loxioides* or *Psittirostra* are trivial and of no significance.

Metatarsus.—The covering of the leg in *Telespiza* is so nearly like that of *Loxioides*, as given by Gadow, that no further description is necessary.

Alimentary canal.—Here again the resemblance to *Loxioides* is so great, no detailed account is worth while. As the bird had been kept in captivity several weeks, the contents of the stomach are of no importance. The crop-like dilatation of the lower end of the oesophagus is marked but there is no real crop. The intestine is about 250 mm. long and is very narrow, its convolutions resembling those of *Loxioides* so closely, that Gadow's figure would do for either bird.

Palatine region.—The bony palate of *Telespiza*, so far as could be determined without a thorough cleaning, resembles that of *Loxioides*, as figured by Gadow, but differs in having a longer interpalatine bone, so that the anterior ends of the pterygoids are separated from the posterior ends of the palatines by a space of 2 or 3 mm.

It is fair to conclude from the sum of these characters that *Telespiza* is, as has generally been supposed, closely related to *Loxioides*, and except for the nostrils, it is more like that genus than any other. In view of the restricted distribution of *Loxioides* and the much wider range of *Psittirostra*, one would naturally have expected the latter to be the nearest ally of *Telespiza*. However as the three genera have, together with *Rhodacanthis*, almost certainly come from a single stock, the failure of the evidence to fulfil this expectation is of no significance.

Finally, I cannot refrain from expressing the opinion, based on the study of Gadow's results in connection with these observations on *Telespiza*, that the apparent resemblance to the Fringillidæ is superficial, and that those ornithologists are correct who look elsewhere for the ancestry of the fringilliform birds of the Hawaiian Islands.